

Claims

1. A ball game racket comprising a frame, which forms a head region for receiving a stringing and a handle portion (1) for holding the ball game racket, and a dampening means provided in the handle portion, wherein in the handle portion the frame has a multi-layer structure and the dampening means comprises a rear dampening element (15) configured as a sheet material and forming at least one layer of the multi-layer structure.
2. A ball game racket comprising a frame, which forms a head region for receiving a stringing and a handle portion (1) for holding the ball game racket, and a dampening means provided in the handle portion (1), wherein the dampening means comprises at least one front dampening element (8) formed on the end of the handle portion facing the head region of the ball game racket.
3. A ball game racket comprising a dampening means having a front dampening element (8) and a rear dampening element (15) according to claims 1 and 2.
4. A ball game racket comprising a frame having a head region for receiving a stringing, a heart region (2) and a handle portion (1) including a handle shell (9) for holding the ball game racket, and a dampening means provided in the handle portion (1) and having at least one front dampening element (8) and at least one rear dampening element (15), wherein in the handle portion (1) the frame consists of a multi-layer structure and the rear dampening element (15) forms at least one layer of the multi-layer structure, and wherein the at least one front dampening element (8) is formed at the end of the handle portion (1) facing the head region of the ball game racket so that in the area of the transition between the heart region (2) and the handle portion (1) it contacts the outer contour of the frame and ends at the end of the handle shell (9) facing the head region of the racket.
5. The ball game racket according to any one of claims 1 to 4, wherein the frame is formed of a plurality of layers of a carbon fiber composite material and the sheet material of the rear dampening means (15) is placed between two or more layers of the carbon fiber composite material.
6. The ball game racket according to any one of claims 1 to 5, wherein the sheet material comprises a foamed material.

7. The ball game racket according to any one of claims 1 to 6, wherein the sheet material comprises nitrile foam, polyacrylonitrile foam, polyurethane (PUR) foam, polyvinyl chloride (PVC) foam, styrene butadiene rubber (SBR) and/or nitrile rubber or acrylonitrile butadiene rubber (NBR).

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8. The ball game racket according to any one of the preceding claims, wherein the sheet material is in the form of a strip of at least 10 mm x at least 140 mm.

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9. The ball game racket according to any one of the preceding claims, wherein the at least one front dampening element (8) comprises a foamed material.

10. The ball game racket according to any one of the preceding claims, wherein the at least one front dampening element (8) comprises a thermoplastic elastomer (TPE), thermoplastic polyurethane (TPU) and/or ethylene/vinylacetate (EVA).

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11. The ball game racket according to any one of the preceding claims, wherein the at least one front dampening element (8) has dimensions of 2-6 mm x 4-10 mm, preferably about 4 x 6 mm.

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12. The ball game racket according to any one of the preceding claims, wherein the rear dampening element (15) has at least partially a density of about 0.16 g/cm<sup>3</sup>.

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13. The ball game racket according to any one of the preceding claims, wherein the front dampening element (8) has at least partially a hardness of about 60 to 100 Shore A and the rear dampening element (15) of about 9 to 30 Shore A.

14. The ball game racket according to any one of the preceding claims, wherein a handle shell (9) is arranged in the handle portion (1).

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15. The ball game racket according to claim 14, wherein the handle shell (9) is made of polyurethane.

16. The ball game racket according to any one of claims 14 or 15, wherein the sheet material is arranged below the handle shell (9).

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17. The ball game racket according to any one of the preceding claims, wherein the sheet material and/or the at least one front dampening element (8) is/are arranged on the handle surface(s) extending parallel to the stringing.

18. The ball game racket according to any one of the preceding claims, wherein the sheet material and/or the at least one front dampening element (8) surround(s) the handle.

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19. A process for producing a ball game racket comprising a frame having a handle portion (1), in particular a ball game racket according to any one of claims 1 to 18, comprising the steps:

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- (a) stacking a plurality of layers of a material for forming the frame of the racket, wherein in the handle portion (1) of the racket at least one layer of a sheet material having dampening properties is placed between the material layers;

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- (b) placing the multi-layer structure into a mold and subsequently molding and hardening the structure; and

- (c) removing the ball game racket from the mold.

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20. The process according to claim 19, wherein the layers of the material forming the frame comprise carbon fiber compound material which is molded and hardened under an increased temperature and/or increased pressure.

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21. The process according to claim 19 or 20, wherein the dampening sheet material is placed between at least two layers of the material forming the frame.

22. The process according to any one of claims 19 to 21, wherein the molding and hardening in step (b) takes place in a press.

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23. A process for producing a ball game racket comprising a frame having a handle portion (1), in particular a ball game racket according to any one of claims 1 to 18, comprising the steps:

- (a) stacking a plurality of layers of a material for forming the frame of the racket;

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- (b) placing the multi-layer structure into a mold and subsequently molding and hardening the structure;

- (c) removing the ball game racket from the mold; and

(d) attaching at least one front dampening element (8) and/or at least one rear dampening element.

- 5    24. The process according to any one of claims 19 to 23, wherein the layers of the material forming the frame comprise a carbon fiber compound material which is molded and hardened under an increased temperature and/or increased pressure.
- 10    25. The process according to any one of claims 19 to 24, wherein the molding and hardening in step (b) takes place in a press.